Roy F. Weston, Inc.
Suite 5700
700 5th Avenue
Seattle, Washington 98104-5057
206-521-7600 • Fax 206-521-7601

MEMORANDUM

DATE 3 December 1998

TO: David Bennett, WAM, U S. EPA, Region X

FROM: Michelle Turner, Chemist, WESTON, Seattle
RMM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Total Organic Carbon Analysis Results
Laboratory Batch K9805481
Site. Duwamish River

WORK ASSIGNMENT NO · 46-23-0JZZ

WORK ORDER NO · 4000-019-038-5200-00

DOC. CONTROL NO 4000-019-038-AAAK

cc: Bruce Woods, RAP-WAM, U.S. EPA, Region X
Dena Hughes, Site Manager, WESTON, Seattle (memo only)
Kevin Mundell-Jackson, Database Management, WESTON

The quality assurance review of twenty sediment samples, laboratory batch K9805481, collected from the Duwamish River has been completed. The sediment samples were analyzed for total organic carbon (TOC) using EPA Method 9060 by Columbia Analytical Services of Kelso, WA. The samples were numbered:

98334037	98334038	98334039	98334040	98334041
98334042	98334043	98334044	98334045	98334046
98334047	98334048	98334049	98334050	98334051
98334052	98334053	98334054	98334055	98334056

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control specifications described in the technical specifications of the laboratory subcontract.

1 Holding Times

All samples were cooled with ice or refrigerated from the time of collection until analysis. A maximum holding time of 14 days was specified in the Duwamish River Sampling and Analysis Plan. All TOC analyses were performed within 14 days of sample collection

2. Instrument Detection Limits

All laboratory reporting limits are equal to or less than the project-required detection limits of 200 mg/kg

3. Initial Calibration

A calibration verification check was analyzed prior to sample analysis. Results met control limits of 90 to 110 percent recovery of the true value

4. Continuing Calibration Verification

Continuing calibration checks were performed initially and after every 10 samples Results for all continuing calibration checks met control limits of 90 to 110 percent recovery of the true value

5. Laboratory Method Blanks

Laboratory method blanks were prepared and analyzed with each batch of samples No analytes were detected above the project-required detection limit in laboratory method blanks.

6 Laboratory Control Sample

The recoveries for TOC were within the control limits of 80 to 120 percent.

7 Laboratory Duplicate Sample Analysis

No replicate analysis was analyzed for this SDG

8 Matrix Spike Analysis

Matrix spike recoveries for all analytes met QC criteria of 70 to 130 percent

9. Field Duplicate Analysis

Samples 98334038 and 98334039 were "blind" field duplicate samples. The relative percent difference between duplicate results was within project limits of less than 35%.

10. Sample Analysis

A cursory review of raw data was performed No problems were noted. Triplicate analyses were not performed for this SDG.

11 Laboratory Contact

No laboratory contract was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values

Data Qualifiers

U - The material was analyzed for, but was not detected

UJ - The analyte was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported were less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Roy F Weston, Inc
Project: Duwamish River/4000-027-001-2019-38
Sample Matrix: Sediment

Service Request: K9805685
Date Collected: 8/20/98
Date Received: 8/21/98

Carbon, Total Organic

Prep Method NONE
Analysis Method 9060M
Test Notes

Units PERCENT
Basis Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
98344072	K9805685-001	0 05	0 006	1	NA	9/1/98	2 17	
98344073	K9805685-002	0 05	0 006	1	NA	9/1/98	1 02	
98344074	K9805685-003	0 05	0 006	1	NA	9/1/98	2 99	
98344075	K9805685-004	0 05	0 006	1	NA	9/1/98	1 84	
98344076	K9805685-005	0 05	0 006	1	NA	9/1/98	1 66	
98344077	K9805685-006	0 05	0 006	1	NA	9/1/98	0 61	
98344078	K9805685-007	0 05	0 006	1	NA	9/1/98	1 73	
98344079	K9805685-008	0 05	0 006	1	NA	9/1/98	2 15	
98344080	K9805685-009	0 05	0 006	1	NA	9/1/98	2 27	
98344081	K9805685-010	0 05	0 006	1	NA	9/1/98	1 15	
98344082	K9805685-011	0 05	0 006	1	NA	9/1/98	1 26	
98344083	K9805685-012	0 05	0 006	1	NA	9/1/98	0 35	
98344084	K9805685-013	0 05	0 006	1	NA	9/1/98	1 50	
98344085	K9805685-014	0 05	0 006	1	NA	9/1/98	1 25	
Method Blank	K9805685-MB	0 05	0 006	1	NA	9/1/98	0 006	J

M Modified

MCT 11/25/98

Approved By _____ Date 9/3/98